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*Short Communication*

# Incidence of intestinal nematodes recovered in slaughtered goats in Figuig Province, Morocco

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**The main purpose of this study was to investigate helminths incidence in goats. Species recorded were *Trichostrongylus colubriformis, Teladorsagia circumcincta, Skrjabinema ovis, Trichuris ovis, Haemonchus contortus* and *Nematodirus spathiger*, and overall prevalence of helminths was 79% (95/120). The most frequently detected nematodes in the goats were *T. ovis* (62.5%) followed by *T. colubriformis* (52.5%) and *T. circumcincta* (48.33%). The helminth parasites counts in the goats reached the maximum levels in autumn. In relation to sex, the occurrence of helminth parasites was 73.6% in female and 86.6% in male goats.**

**Key words:** Goats, gastro intestinal (GI) nematodes, incidence, seasonal activities, oriental.

## INTRODUCTION

Gastrointestinal parasitism is one of the most important diseases of goats, especially nematode infections which are among the major health problems limiting its productivity (Dimander et al., 2000; Johannes et al., 2009). Economic losses are caused by gastrointestinal parasites in a variety of ways. The losses can be through lowered fertility, reduced work capacity, involuntary culling and a reduction in food intake and reduced weight gain, lower milk production, treatment costs and mortality in heavily parasitized animals (Mcleod, 1995; Amadi et al., 2012).

Several studies were done on the incidence of gastrointestinal parasites of goats in different parts of Africa (Katoch et al., 2000; Maichomo et al., 2004; Nwigwe et al., 2013). In Morocco, little information on the distribution and impact of gastro-intestinal tract (GIT) parasitism in these animals is available. And it was therefore important that a survey of helminths of economic importance occurring in this area be conducted. The principal aim of this work was to investigate the incidence of gastrointestinal helminths affecting local goats from oriental zone of Morocco.

## MATERIALS AND METHODS

The investigation was carried out in the oriental province of Morocco during the period of November 2005 to May 2006. Animals were selected from different slaughter houses. Immediately after slaughter, the intestines were collected after giving knots on both ends such as at the beginning of the duodenum and ending of the rectum. Then the intestines were brought to the laboratory packed

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**Table 1.** Prevalence on the basis of sex of the hosts.

| Sex | No. examined | No. positive | Prevalence (%) |
|---|---|---|---|
| Female | 68 | 50 | 73.6 |
| Male | 52 | 45 | 86.6 |
| Total | 120 | 95 | 79 |

**Table 2.** Prevalence of helminth parasites according to sex.

| Parasite name | In female host | In male host | In total host |
|---|---|---|---|
| *T. colubriformis* | 29 (42.64%) | 33 (63.46%) | 63 (52.5%) |
| *N. spathiger* | 14 (21.53%) | 8 (15.38%) | 22 (18.33%) |
| *T. ovis* | 41 (60.29%) | 34 (59.6%) | 75 (62.5%) |
| *H. contortus* | 11 (16.17%) | 12 (23.07%) | 23 (19.16%) |
| *S. ovis* | 21 (32.3%) | 30 (57.69%) | 51 (42.5%) |
| *T. circumcincta* | 19 (27.94%) | 39 (75%) | 58 (48.33%) |

**Table 3**. Occurrence of gastrointestinal nematodes in goats in relation to seasons.

| Name of parasite | Winter season | | Spring season | | Autumn season | | Summer season | | Overall Occurrence (%) |
|---|---|---|---|---|---|---|---|---|---|
| | No. infected (n=35) | Percentage infected | No. infected (n=29) | Percentage infected | No. infected (n=18) | Percentage infected | No. infected (n=13) | Percentage infected | |
| *T. colubriformis* | 23 | 65.70 | 16 | 20.70 | 13 | 72.20 | 11 | 84.70 | 59.65 |
| *T. circumcincta* | 21 | 60.00 | 17 | 58.7 | 12 | 66.70 | 7 | 53.90 | 59.90 |
| *S. ovis* | 21 | 60.00 | 8 | 27.60 | 13 | 72.20 | 9 | 69.20 | 57.25 |
| *T. ovis* | 7 | 20.00 | 6 | 20.70 | 7 | 38.90 | 8 | 61.6 | 35.3 |
| *H.contortus* | 6 | 17.00 | 7 | 24.00 | 6 | 33.30 | 4 | 30.80 | 26.27 |
| *N. spathiger* | 6 | 17.00 | 8 | 27.60 | 6 | 33.30 | 4 | 30.80 | 27.17 |
| Overall occurrence (%) | 39.9 | | 29.9 | | 52.8 | | 44.8 | | |

in a polythene bag as soon as possible. Then, the intestine was cut along the long axis with the help of scissors and the internal mucus membranes were also thoroughly examined, collected parasites were washed several times in normal saline (0.9%) and preserved in luke-warm 70% alcohol (Urguahart and Amour, 1997). Parasites were identified following the keys and descriptions given of Soulsby (1982). The prevalence of each parasite infection was calculated as the number of animals diagnosed positive for a given parasite divided by the total number of animals examined at the particular time (Thrusfield, 2005).

## RESULTS AND DISCUSSION

The present study reveals that the overall prevalence of gastrointestinal parasitosis in goats was 79%. The majority of them had multiple helminth parasites. The prevalence of all the nematode infections was found to be significantly higher in male goats than in females (Table 1). The reason for this difference can be attributed to some physiological factor, though both sexes are exposed to similar environmental conditions (Gauly et al., 2006).

A total of sex species of nematodes were recorded and the prevalence of helminthes was higher in males when compared with the females (Table 2). However, most of the researchers have observed higher rate of infection in female hosts when compared with males (Maqsood et al., 1996; Valcarcel and Romero, 1999).

The prevalence of different helminth parasites in relation to season is presented in Table 3, the infection by helminth was observed to be prevalent in all seasons, with some variations. *Trichostrongylus colubriformis, Teladorsagia circumcincta* and *Skrjabinema ovis* were found to be more prevalent in summer and autumn. *Haemonchus contortus* increased in autumn, and declined in winter, higher occurrence was recorded in autumn (52.8%) followed by summer season. our results

are not in agreement with that of Haq (1968) who reported that the highest occurrence was observed in rainy season (95%) followed by winter (90%) and summer (85%). The possible cause of this difference in the percentage of infection could be due to reduced grazing.

According to Kedar et al. (2012), prevalence of gastro intestinal parasites is considerably influenced by the climatic conditions and as far as possible, the evidence of the distribution and prevalence of the diseases is presented by geographical area, roughly corresponding to climatic conditions.

In conclusion, various gastrointestinal parasites have been found in goats in the study area. Hence, the high prevalence rate of helminthiases in livestock needs to be checked periodically. Regular control measure should be practiced and farmers educated in proper use of anthelminthes. It is highly recommended that further studies be done to evaluate the impact of helminth infections on the health and production of small ruminants.

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